



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/699,821

11/04/2003

Masaru Furuta

NOG-0018

4453

23353

7590

03/22/2005

RADER FISHMAN & GRAUER PLLC  
LION BUILDING  
1233 20TH STREET N.W., SUITE 501  
WASHINGTON, DC 20036

EXAMINER

HASHMI, ZIA R

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/699,821

Applicant(s)

FURUTA, MASARU

Examiner

Zia R. Hashmi

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/4/2003
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Independent claims 1 and 10 and dependent claims 3, 7, 13 and 14 are rejected under 102(b) as being anticipated by Hillenkamp et al. ( 6,423,966 ).

3. With respect to independent claims 1 and 10, Hillenkamp et al. disclose a method and apparatus of a laser desorption ionization mass spectrometric method ( Abstract, lines 1-3 and col. 1, lines 12-16 ), which applies a laser beam to a sample placed on a sample plate attached to a mass spectrometer so that the sample is ionized and then analyzed ( col. 1, lines 27-45, col. 3, lines 20-38 ), comprising the steps of: adsorbing a sample on a membrane which has been affixed on a flat metal plate of the sample plate; applying a reagent to the adsorbed sample on the membrane to subject the sample to a modifying reaction; ( Abstract, lines 29-32, col. 5, lines 4-7, col. 7, lines 57-59, col. 9, lines 12-39, and 71 & 72 in Fig. 9A & 9B ); analyzing the sample through a laser desorption ionization mass spectrometric method by attaching the sample plate after the modifying reaction to a mass spectrometer ( Abstract, lines 1-3, col. 3, lines 20-38, col. 5, lines 7-30, and col. 9, lines 29-47 ). Their sample plate comprises of a flat metal plate and a membrane affixed to the metal plate ( col. 9, lines 12-29 & 37-39, and 71 & 72 in Fig. 9A & 9B ).

Art Unit: 2881

4. With respect to dependent claims 2-3, 7, 13 and 14, Hillenkamp et al. also disclose a method in which a medium on which the sample is developed is superposed on the membrane, or porous or fibrous sheath, on the sample plate, and voltage can be applied between the medium and the membrane or sheath so that the sample or its ions are transferred or extracted onto the membrane from the medium ( col. 9, lines 19-24 and Fig. 14 ), the membrane being a polymer ( col. 9, lines 35-39 and 71 in Fig. 9A & 9B ), and sample plate is compatibly used as a plate for mass spectrometry ( col. 8, lines 57-60, col. 9, lines 39-42, and 61 in Fig. 7A ).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 4-6, 8-9 and 11-12 are rejected under U.S.C. 103(a) as being unpatentable over Hillenkamp et al. ( 6,423,966 ), in view of Little et al. ( Pub. No: US 2003/0096426 A1 ).

7. With respect to dependent claims 2, 4-6, 8-9 and 11-12, Hillenkamp et al. fail to disclose a laser desorption ionization mass spectrometric method, wherein the sample to be adsorbed on the membrane is a material selected from the group consisting of proteins, peptides, lipids, and nucleic acid molecules. Little et al., however, disclose a method of adsorbing sample to the membrane, the material of which is selected from

Art Unit: 2881

the group consisting of protein, peptides, lipids, and nucleic acid molecules ( paras 0074-0077 ).

Thus, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine method and apparatus of Hillenkamp and Little et al., and add features like separation of sample by two-dimensional electrophoresis process, or a visualizing process carried out by using a color-developing or fluorescence reagent, because Little et al. teach ( para 011 ) that the process of preparing and analyzing arrays of biochemical sample material is complex and error prone.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Benninghoven et al. disclose ( 4,527,059 ) a laser activated mass spectrometer for the selective analysis of individual trace-like components in gases and liquids, which uses polymer film with a sample plate.


9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2881

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (571) 272-2473. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477.

Zia Hashmi

March 12, 2005.

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800